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PHYSIOLOGY DEPARTMENT



SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE • JAN. 17, 1948



Better Beefsteaks Ahead

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A SCIENCE SERVICE PUBLICATION



What kind of man?

WHAT KIND of men are the 2,300 scientists and engineers of Bell Telephone Laboratories?

Men of many types, working in different fields of research, may contribute to each development.

But all have certain characteristics in common: Good minds as a foundation, many years of learning in the fundamentals of their science and the methods of research, and a co-operative attitude — for without co-operation of individuals these products of research could never be produced.

Above all else, however, they have "the spirit to adventure, the wit to question, and the wisdom to accept and use."

That kind of men can produce the finest telephone equipment in the world — and have done so.



BELL TELEPHONE LABORATORIES EXPLORING AND INVENTING, DEVISING
AND PERFECTING FOR CONTINUED IMPROVEMENTS AND ECONOMIES IN TELEPHONE SERVICE

MEDICINE

Atom Bomb Defense

Rutin may save future radiation victims by strengthening the walls of their blood vessels to prevent hemorrhages.

► A POTENTIAL medical weapon against the atom bomb has been discovered by Drs. Paul E. Rekers and John B. Field of the Atomic Energy Project at the University of Rochester.

Rutin, obtained as a bright yellow powder from the green buckwheat plant among other sources, is the weapon.

It might save future atom bomb victims who were not killed outright by strengthening the walls of their blood vessels.

Uncontrollable bleeding, with oozing of blood into practically every organ and tissue of the body, is a primary factor in the deaths of humans and other mammals exposed to sublethal and midlethal doses of total body irradiation.

Such hemorrhages killed a considerable number of persons within three to five weeks after the atom bombing of Hiroshima and Nagasaki. The hemorrhages were ascribed to lack of certain elements in the blood necessary for clotting. This was due to radiation damage to certain cells of the bone marrow. An increased quantity of heparin, anti-clotting chemical, or of heparin-like material, has recently been observed in dogs following acute whole body exposure to ionizing radiation such as that from the atom bomb.

Strengthening the blood vessel walls might, the Rochester scientists thought, protect the body of an animal or man whose blood had too little clotting power as a result of radiation damage.

Tests reported in the journal, *Science* (Jan. 2), seem to show that their theory is right. They gave rutin three times a day for a week to 25 normal adult dogs. The dogs were then given a mid-lethal dose of X-rays. They continued to get rutin throughout the test. Only three of the rutin-treated dogs died, whereas 16 of 25 untreated dogs died after the same X-ray dose.

Both groups of dogs had the same post-X-ray depression of blood elements, especially white blood cells and thrombocytes. The latter are involved in blood clotting. In several of the rutin-treated dogs, this decrease in white blood cells and thrombocytes was severe and lasted 10 to 14 days. But they eventually recov-

ered. Recovery from such severe and lasting depression of these blood elements, the scientists state, has rarely been seen in their laboratory.

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VETERINARY MEDICINE

Sleepy Sickness in Dogs Mistaken for Distemper

► A WARNING to dog owners to watch out for signs of so called sleeping sickness, or encephalitis, in their pets was issued by the American Veterinary Medical Association.

The disease may be responsible for a great many of the dog losses hereto-

fore attributed to distemper. It is caused by a virus that affects the brain and nervous system. Distemper is also caused by a virus, and the symptoms are similar. But treatment for the two diseases is different.

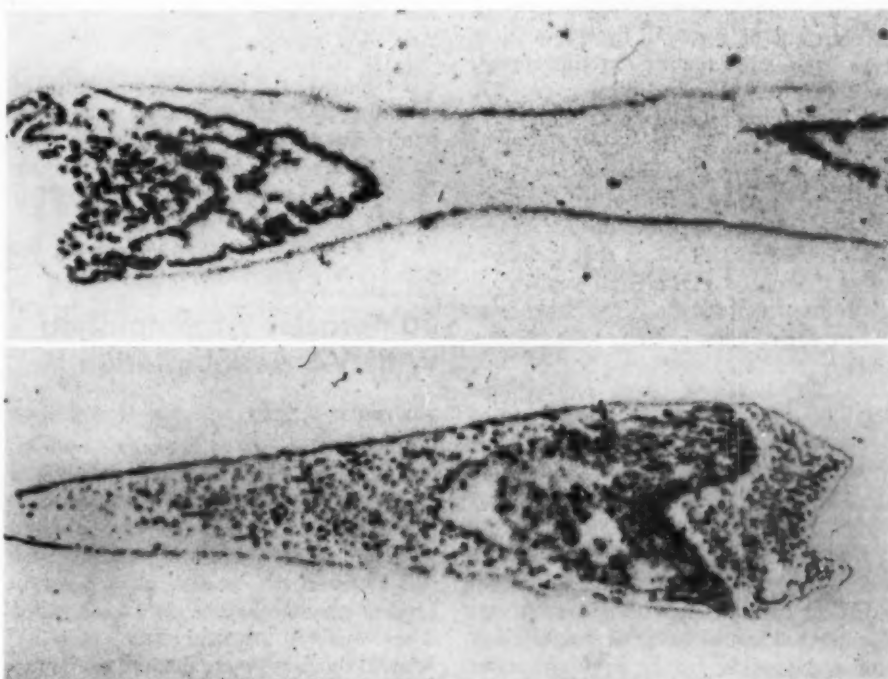
Anti-encephalitis serum is effective treatment in the early stages of the disease. Vaccination to prevent the disease is "still in the experimental stage," the association stated.

Encephalitis has been found in specimens from widely scattered sections of the country and is believed, on the basis of recent research, to be much more prevalent than heretofore realized.

More than 500 dogs in a single city, St. Cloud, Minn., have been stricken by the disease and a special veterinary research project has been set up to seek methods of controlling the outbreak.

An attack of encephalitis usually begins with violent convulsions followed by a lethargy in which the dog appears to be "walking in its sleep." Then these symptoms occur alternately. The death rate ranges from 20% to 75%.

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BIOLOGICAL ACTION OF ELEMENTS—Seeking ways to protect atomic workers from radioactive elements that might get into their bodies, Dr. Joseph G. Hamilton, University of California, injected the same elements into laboratory rats, then made these radioautographs of slices of rat bone, each one two-hundred-thousandth of an inch thick. They show the highly radioactive elements deposited in a thin layer of tissue, called the osteoid matrix, adjacent to the bone marrow cavity. Americium (lower), but not plutonium (upper) is also deposited in the region of small blood vessels that pass through the bone itself.

MEDICINE

Chronic Illness Increases

It poses a major challenge to doctors since seven out of every 10 deaths in New York state alone are due to long-term illness, says A.M.A. president.

► CHRONIC, or long-term, illness is one of the major challenges to the medical profession today, Dr. Edward L. Bortz, of Philadelphia, president of the American Medical Association, declared at the association's meeting in Cleveland.

The most common causes of long-term illness in the United States are: blood vessel disorders; chronic heart disease, high blood pressure, apoplexy, coronary occlusion; mental disorders; tuberculosis; cancer; diabetes; stomach and intestinal disturbances; anemias and other blood disorders; chronic alcoholism; genito-urinary disturbances including prostate gland disease; orthopedic (bone and joint) disorders; allergic states and disturbances of special senses producing deaf-mutism, hardness of hearing and lessening or total loss of vision.

*Seven out of every 10 deaths in New York state are due to chronic illness, according to estimates, and over 70% of all disability results from it.

The problem of chronic illness is greater since effective remedies are being applied for many of the acute illnesses, such as infections, gland disorders and diet deficiencies. The fact that cancer is being diagnosed earlier and more cancer-threatened lives are being saved also adds to the number of those with chronic illnesses.

Old age, however, is not synonymous with chronic illness, Dr. Bortz emphasized. No age is immune to it and over 40% of patients suffering from some form of chronic illness are under 45 years.

"Long-range planning on a state-wide basis is essential," Dr. Bortz declared. "Medical authorities, with governmental officials and social workers should institute a state-wide survey in those states which have not yet developed a program. Classification is important. The basic approach to handling these patients should be preventive and prophylactic in character. For patients who have received maximum hospital benefits, custodial care either in homes or special institutions should be developed. Basic research, especially for degenerative conditions such as vascular and arthritic disorders, is uppermost in importance. Re-

searches in other phases of long-term illness need likewise to be greatly extended."

Mental Upsets Cut Output

► THE industrial worker who is mentally upset can do more to keep down production than a worker with heart trouble or other organic disease who is placed in a suitable job, Dr. Harold M. Harrison, medical director of George Weston, Ltd., Toronto, declared at the meeting.

Pride in workmanship and sense of achievement have been taken from many workers by technical developments that make them just tenders of machines, not mechanics. A feeling of inferiority which Dr. Harrison thinks is having serious repercussions on our community life has resulted.

To remedy the situation and help the mentally upset in industry, large companies should have psychiatrists on their staffs, while the company physician for small concerns will have to learn more of this branch of medicine.

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PHYSICAL MEDICINE

50 Miracles Accomplished With VA Rehabilitation

► FIFTY miracles, as they would have been called in an earlier age, were reported by Dr. Donald A. Covalt, of New York University College of Medicine, at the American Medical Association's congress on industrial health in Cleveland.

The twentieth century miracles went further than making the lame walk. They consisted in getting 50 men, World War I veterans over 50 years old, victims of strokes, broken backs and other conditions, out of the beds where they had been confined as helpless patients for 10 years, back home, walking, feeding and dressing themselves and working part or full time.

The miracles were accomplished in nine months by the methods of physical medicine and rehabilitation established in the Veterans Administration just two years ago.

Besides their value in terms of human happiness, the 50 miracles saved the government over \$1,000,000, Dr. Covalt estimates. The saving is based on the hospitalization cost of \$12 per day for each of the 50 patients, each of whom could be expected to live at least six more years. In addition to this saving, these men are now wage earners and taxpayers. And they are just a few, he indicated, of the many from two wars whom VA's rehabilitation service is returning to normal life and jobs.

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One rocket, to give additional power at take-off to heavily loaded planes uses as fuel mixed nitric acid, sulfuric acid and monoethylaniline.

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ENGINEERING

Fireless Blasting Methods For Coal Protect Miners

► FIRELESS, sparkless blasts of compressed air are jarring loose coal in one of America's newest and safest mines. The mine is the New Kathleen mine near Du Quoin, Ill., where more than a million tons of coal a year will be mined with modern safety and efficiency.

In addition to the air blasting, other safety features of the mine include a slope entrance instead of a vertical shaft with a hoist, conveyor belts to carry coal to the tippie and spraying both with rock dust on the walls and ceiling and water during some of the operations to cut down the dust.

Air blasting without fire is more expensive but reduces the possibility of explosions and is less likely to result in cave-ins than conventional blasting powder operations, mine officials declare.

Most of the mining processes use electricity in this mine which is owned and operated by a subsidiary of the Union Electric Company of Missouri. The new \$2,000,000 mine was put into operation this summer in the same Illinois coal field as the original Kathleen mine, which closed down in 1946 after 30 years of operation.

A water spray plays on the coal as bits on a revolving chain cut under the coal. Machines with two drills instead of the conventional one, carve out holes in the coal wall. These holes are sprayed with oil solution to reduce the dust before blasting.

Into these holes goes an airdox shell with a copper tube trailing back to a safe distance from the blasting. Air at a pressure of 10,000 pounds per square inch is shot into the shell through the tube. At a safe distance the operator releases the charge of air at high pressure into the holes.

There is no fire or blast powder, but the rush of compressed air breaks down an average fall of 35 tons of coal. A miner with a safety lamp inspects each fall to detect any methane gas present, but none has been found in the new mine.

After the coal is broken down by the air blast, an electrical car with heavy metal arms scoops in the coal and carries it to the conveyor belt where it is dumped for the ride to the high tippie. At the tippie, small bits of coal are sorted out for use in steam electric plants of the Union Electric Company. Larger coal is sold commercially.

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AIR BLASTING—A new safety feature in mines is this modern air-blast shell which a miner is inserting into a wall of coal. The air shoots into the shell through the copper tube which leads back a safe distance from the site of the blast and will send about 35 tons of coal crashing out of the vein.

OPHTHALMOLOGY

Improve Cataract Surgery

New procedure of cauterizing the leaking area after a cataract has been removed may hasten patient's recovery and increase chances of good vision.

► A NEW surgical treatment to stop "leaks" after cataract operations was reported by Dr. Victor A. Byrnes of the Aviation School of Medicine, Randolph Field, Tex., at the third Pan American Congress of Ophthalmology in Havana.

Cases in which the new procedure would help are those in which the fluid filling the front part of the eye leaks out or does not refill the space after the cataracts have been removed. The cornea is left flat against the iris in such cases.

To remedy this, Dr. Byrnes reopens the wound and cauterizes the leaking area. In two of the five cases reported slightly more complicated procedures were used. One 84-year-old woman had to undergo three operations before her eye returned to normal.

Dr. Byrnes emphasized that the procedure had been tried in only a few

cases, but his experience indicated that the patient's recovery was hastened, his comfort was increased and the chance of securing good vision was improved. He expressed the hope that others would try his method so that its value might be determined.

Altitude Affects Eyesight

► HIGH altitudes affect eyesight even among permanent inhabitants of mountain regions who have become acclimated to the oxygen-scarce air, it appears from a report by Dr. Jorge Valdeavellano of Lima, Peru.

A fifth of the persons he examined who lived in a town slightly above 15,000 feet in the Andes had only two-thirds the normal visual acuity.

There was no apparent reason for the

deficiency in eyesight and none of the persons mentioned having any difficulty in their work because of their lesser capacity to see. Many were surprised to learn they had such a handicap.

Dr. Valdeavellano's studies are believed to be the first made on the effect of high altitude on permanent residents although a number have been made in persons suffering from acute lack of oxygen in connection with aviation health problems.

The field of vision was reduced in a few of the mountain dwellers and practically all of them had enlarged blood vessels in the eyes.

Color discrimination was apparently not affected, since the percentage of Andean inhabitants with deficient color vision was about the same as in Lima. "After-images" (visual impressions lasting after the actual image has disappeared) were delayed in appearing and lasted longer in more than half of those examined.

Although some investigators have found an elevated tension, or pressure, within the eye during research on effects

of altitude, the tension in these Peruvian residents of mountainous areas was within normal limits.

Worms Invade Eyes

► SEEING worms before the eyes is a reality and not an alcoholic or other hallucination for patients with the tropical disease, onchocercosis.

The worms are in the eyes and seeing them is one symptom peculiar to the disease, Dr. M. Puig Solanes reported.

Onchocercosis is an infection caused by one of the species of threadlike worms known as filariae. It occurs only in Mexico and Guatemala in the Western Hemisphere, and in two-thirds of the cases the worms invade the eyes.

The worms look like black or colored threads moving about in the visual field, the patients say. The eye specialist can see them, too, when he looks through the electric ophthalmoscope to examine the eyes.

There is no specific treatment for the eye manifestations, Dr. Puig Solanes said.

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MEDICINE

Navy Doctors Join Safari

They will go along with the University of California African Expedition to study native tropical diseases and protect other scientists.

► MICROSCOPES will supplement rifles on the new sort of safari expected to be undertaken soon by Naval medical scientists. When contract negotiations now pending are completed the scientists will accompany the University of California African Expedition, which proposes to turn the light of scientific research on the darkest continent.

The Navy medical group, latest planning to join the African Expedition, will have a two-fold duty. First, it will provide medical service to the top paleontological and anthropological scientists who, under the sponsorship of the University of California, will cover most of Africa this year seeking traces of primitive man and apes.

Second, the Navy, already well-known for its research in tropical diseases, will study such native diseases as African sleeping sickness, Bilharzia or snail fever, plague, scrub typhus, yellow fever and malaria. There are also a host of parasites in human beings concerning

which the Navy scientists are exceedingly curious, such as the particular form of hookworm in Mozambique, Portuguese East Africa.

To pursue their studies of these diseases, the Navy medical group will have to trap and shoot animals which are disease carriers. Among these are the rodents which are known carriers of bubonic plague; the zebras which are attacked by ticks and may carry relapsing fever; the deer, gazelles, eland, and possibly lions, tigers and leopards thought to be reservoirs of African sleeping sickness; and a large group of insect-eaters such as the shrew which may be a carrier of plague and malaria.

Most of these animals have not been used in research by American medical scientists before because animals which are potential disease carriers are not allowed to be imported. If they should escape captivity they might introduce a whole new series of diseases into the United States.

There are particular regulations against the fruit bat, a known malaria carrier, which if once established here would destroy citrus fruits. This fruit bat, however, is highly regarded by medical scientists as a good laboratory animal because it is easily raised in captivity. It may be that certain phases of the malaria cycle, not yet entirely understood, could be worked out through study of it.

The leader of the Navy group, Comdr. Julius M. Amberson, USNR (MC), says his party will not take restricted game such as the gorilla, elephant or giraffe unless necessary. They are more interested in small game concerning which there is less scientific knowledge.

All information discovered will be made available to research and public health authorities in Africa, and their respective governments.

Among the more interesting sections to be visited by the medical scientists are the Nubian desert, which has not been studied by a scientific group for over 100 years, the Sudan proper and the great central lake regions of Africa.

Assisting Comdr. Amberson will be Dr. Ernst Schwarz, zoologist and an authority on African mammals; Comdr. Trenton Ruebusch, University of Virginia parasitologist; and Capt. Harry Hoogstaal, former Army medical officer and entomologist from Chicago's Field Museum.

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AGRICULTURE

Spent Brewery Hops Form Good Mulch for Plants

► WASTE hops from breweries can be used to protect valuable plants from weather, weeds and fire.

Used as a mulch on the famed plants of the Arnold Arboretum of Harvard University, the spent hops were found to be a better protecting material than leaves, hay or straw which are commonly used. These mulches may be set on fire by a carelessly discarded cigarette. The waste hops, even when dried out, do not blaze up, and a flame will quickly go out unless exposed to other material.

Many mulches have been tried to protect the plants for the Arnold collection from this hazard. Some of the materials include wood shavings mixed with horse manure, ground coconut hulls, vermiculite, buckwheat hulls, ground banana stalks, peat moss and glass fibers. But the beer byproduct is the best one yet found.

For parks and other large, open areas where plants need to be protected, the spent hops may solve an important problem, but in your own garden, you will probably want to continue using leaves

or straw. The hops have a disagreeable odor which gradually disappears in large open areas, but might be less attractive in a small, compact home garden.

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PLANT PATHOLOGY

Test for Plant Diseases

A brilliant red color develops when certain virus-infected leaves are treated with an alkaline solution. May also prove useful as tool for study.

► A QUICK chemical test for some virus diseases of plants has been developed by Dr. R. C. Lindner, plant pathologist of the State College of Washington, at the Tree Fruit Branch Experiment Station at Wenatchee.

The test depends on a brilliant red coloration that develops when certain virus-infected peach or sweet cherry leaves are treated with an alkaline solution.

The test should be of great aid in establishing virus-free sources of plant material for propagation purposes, Dr. Lindner points out in his report to the journal, *Science* (Jan. 2).

It should give material aid in diagnosing some cases where symptoms are few and not typical, and might also be useful as a tool for study.

Ring spot, mottle leaf, rasp leaf, rusty mottle, twisted leaf and little cherry diseases of sweet cherry trees and cherry rusty mottle, western X-disease and little peach diseases of peach trees have been detected by the test.

Virus diseases of apples, apricots, raspberries, strawberries and blueberries can probably also be detected by the test.

To make the test, a disk is punched out of the middle of a leaf with an ordinary paper punch. The leaf disk is put in a test tube with a solution of sodium hydroxide, copper sulfate and sodium citrate. The tube is heated in a boiling water bath for five to 10 minutes, allowed to cool for 10 minutes and then shaken thoroughly. Normal leaves give a blue-green color, those from plants infected with certain viruses give a red color of varying intensities. The differences can be detected by the eye alone, but for accurate work, they are measured in a photoelectric colorimeter.

The chemical that gives the color has not yet been identified but is believed to be a tannin.

Girdling is the only factor known at

present to interfere with the test. Leaves from a girdled branch of virus-free trees give a red color like that of virus-infected leaves.

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TECHNOLOGY

New Machine Washes Eggs Quickly without Injury

► THE 500-bird poultry farmer, or the big poultry man, need no longer wash his eggs by hand. A new machine developed in Ithaca, N. Y., under the direction of Prof. Forrest B. Wright of Cornell University, will do the job five times as fast and without any injury to the eggs.

In the new machine, which in ap-

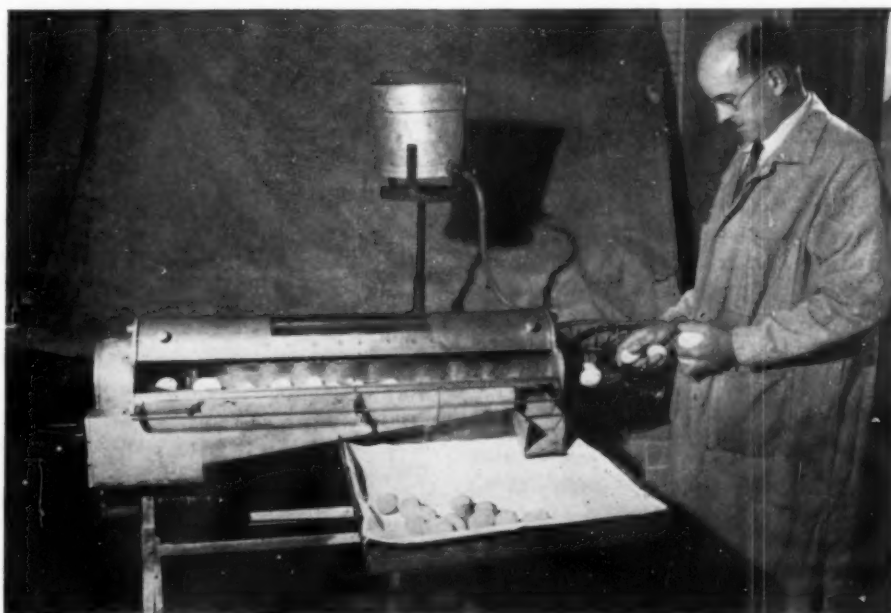
pearance resembles a horizontal cylinder some three feet long, the eggs are passed in a continuous stream and are flushed for 22 seconds in hot water at a temperature of from 165 to 170 degrees Fahrenheit. The water is supplied through a perforated pipe which extends out over revolving, abrasive-coated, cloth disks. The hot water softens the dirt; the scouring action of the disks removes it. The debris is carried away with the waste water.

The eggs are held against the pressure of the disks by two plastic rollers. These rollers also spin the eggs, causing them to turn on their short axes so that the ends of the eggs are cleaned as well as the rest.

The exposure of the eggs to the hot water for the short interval of 22 seconds has no effect on the matter inside the shell. After washing, the eggs are rolled over toweling to remove moisture, then quickly dried in a blast of hot air.

Dirty eggs washed in cold water will not keep as well as unwashed eggs, but those washed in this machine will keep in storage better than dirty eggs cleaned by any other method tested by the college. The machine removes very little of the natural "bloom" from the egg shells, and it can handle thin-shelled eggs without breakage.

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EGG WASHER—Without damaging even thin-shelled eggs, this new machine can clean a continuous stream of eggs. Hot water, supplied through a perforated pipe, softens the dirt, the scouring action of the cloth disks removes it and the debris is carried away with the waste water.

GENERAL SCIENCE

Scientists to Explore Primitive Australian Area

► ARNHAM Land, a primitive region on the north coast of Australia, will be explored by a party of American and Australian scientists, beginning at the close of the rainy season in March. The two-nation party of scientists will study the stone age savages of the little-known area and its animal and plant life.

Four of the expedition's five bases will be at Christian missions at the heads of navigation of mainland streams, while the other base will be on Groote Eylandt (Big Island) off the coast.

Arnhem Land, about the size of the state of Maine, was discovered by the Dutch and named for the yacht of early explorers. It is east of Darwin, on Australia's north coast. The aboriginal inhabitants long held a savage reputation as cannibals, and they are still considered difficult to approach. Natives will, however, be used as porters for trips inland.

The expedition will land in Arnhem Land from a small schooner which will carry the party to coastal stations on Van Diemen Gulf, the Arafura Sea and the Gulf of Carpentaria.

Charles Percy Mountford, ethnologist of the South Australia Museum, Adelaide, will be leader of the expedition, which is sponsored jointly by the Smithsonian Institution, the National Geographic Society and the Commonwealth of Australia. American scientists from the Smithsonian Institution who will be in the party include: Frank M. Setzler, head curator, department of anthropology; Dr. David H. Johnson, associate curator, division of mammals; Herbert G. Deignan, associate curator, division of birds; and Dr. Robert R. Miller, associate curator, division of fishes.

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GENERAL SCIENCE

Indian Scientists Doing Important Research Work

► NOT only politically, but also in the scientific field, India has reached maturity. A visit to the Royal Institute of Science at Bombay shows that Indian scientists have much to contribute to international science.

Quite young as scientific institutions go—the Royal Institute of Science celebrated its Silver Jubilee only two years ago—it has already left its mark upon

the scientific life of India and some of its alumni are world famous. Enough to mention Prof. H. J. Bhabha (now head of the Tata Institute of Fundamental Research, Bombay) of cosmic ray fame; Prof. V. V. Narlikar (now head of the department of mathematics, Benares University) known for his work on relativity.

The Principal of the Science Institute, Prof. Mata Prasad, has done outstanding work in colloid and magneto-chemistry and, together with a group of energetic research students, is continuing to investigate the preparation and the formation of gels, more particularly soap gels in non-aqueous media.

In organic chemistry, Prof. R. C. Shah is covering a wide field, including the chemistry of coumarins and chromones, derivatives of salicylic acid and new method of preparation of saccharin and chloramine-T.

In the department of inorganic chemistry, researches have been carried out by S. M. Mehta and his students on alkaline earth sulphates, amphoteric oxides, boric acid and upon the recovery of titania from bauxite.

In the physics department, work is in progress on the scattering of light by dust and smoke particles, on dipole moments, on the fluorescence of synthetic materials. Dr. N. R. Tawde, professor of physics, is working on the spectra of flames of hydrocarbons.

Equally important work is being carried out in the departments of botany and zoology of the Institute.

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ENTOMOLOGY

Tobacco with 10% Nicotine Used to Kill Insects

► FINELY - GROUND tobacco so strong in nicotine that not even the most confirmed snuff addict would ever dip or chew it—not more than once, anyway—has been patented as a possibly profitable commodity. Intended for poisoning insects, it has had its natural nicotine content stepped up to 10% by the addition of straight nicotine sulfate. The pulverized leaf and stem tissue serves as an efficient and low-cost carrier, in place of the mineral dusts hitherto employed.

The inventor of this new natural insecticide, Robert B. Arnold of Richmond, Va., has assigned rights in his patent, No. 2,431,672, to the Tobacco By-Products and Chemical Corporation.

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IN SCIENCE

ENGINEERING

Heating Costs Reduced by Mixing Sizes of Coal

► HOME HEATING costs may be reduced where anthracite is used for fuel by using in connection with the ordinary egg or stove coal some of the pea, buckwheat and rice sizes, James Boyd, director of the U. S. Bureau of Mines, said.

These small sizes are plentiful, cost less than the larger, and have a heating value almost equal to that of egg, stove and chestnut sizes, he declared. For the best results, the larger and the smaller sizes should be burned in alternate layers. The layer method is particularly advantageous in banking or mild weather firing because the percentage of the smaller sizes can be increased at these times, thus producing a slower burning fire which will last much longer before refueling is necessary.

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PHYSIOLOGY

Sex Influences Man Less Than Lower Animals

► MAN differs from mice in being less influenced by sex and body chemistry and more by love in his courtship and mating.

But no vertebrate animal is exclusively controlled by physical factors in finding a mate and raising its young, Prof. Frank A. Beach, psychologist of Yale University, reports in a new book published by Paul B. Hoeber, "Hormones and Behavior." Studies of sex behavior are reported not only for man and the higher animals but also for other creatures much more distant on the evolutionary scale, such as fish, frogs, snakes and even paramecia.

As we go up in the evolutionary scale, Prof. Beach says, the relative importance of the hormones and body chemistry becomes less and less important and psychological factors more and more evident.

The chimpanzee is most like man of all the animals—so much so that over-sexed animals, masturbation, "rape" and even "prostitution have been observed in these closest of man's relatives.

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E FIELDS

MEDICINE

Epidemic Nausea Now Called Virus X Disease

► IF you and each member of your family have one after another had a sudden attack of nausea and vomiting which laid you low for 24 to 48 hours, you were probably suffering from epidemic nausea.

This apparently new disease, recently christened virus X disease in Los Angeles, is not so new to doctors who have been seeing cases for the past several winters. It is believed to be caused by a virus, but the virus has never been isolated and therefore got the name X, for unknown.

The majority of the cases of illness in Los Angeles are probably due to the common cold and epidemic nausea, Dr. Wilton L. Halverson, director of public health, reported in answer to a Science Service inquiry.

Blood tests have shown the presence of influenza virus A in the southern California area, he stated. Virus isolations from nose and throat washings have been suggestive but thus far not conclusive for virus A.

So probably the hundreds of thousands of cases, according to unofficial reports, of a mysterious disease were made up of some cases of the 'flu plus many bad colds plus attacks of epidemic nausea. Between them, the illnesses have caused 20% school absenteeism, the state health officer reported to the U. S. Public Health Service.

No work on virus X disease has been done at the Hooper Foundation, famed for its virus researches, at the University of California School of Medicine in San Francisco.

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AERONAUTICS

Wind Tunnel Duplicates Upper Atmosphere Pressure

► A TINY wind tunnel at the University of California at Berkeley is said to be the world's first low pressure type to duplicate actual pressure conditions up to an altitude of over 45 miles.

It is a model with a test section only

one inch square. Its purpose is to test design features for a 10-inch square operating tunnel now under construction. With this larger tunnel, scientists will be able to explore for the first time a wide belt in the upper atmosphere, extending up perhaps to 300,000 feet.

The principal object of this tunnel is to develop precise information on the fluid mechanics of supersonic speeds in extreme altitudes. These are speeds faster than the velocity with which sound travels. The first application of the information gained will be in the fields of guided missiles, rockets and airplanes.

There are already several supersonic wind tunnels in use in the United States but they blow air over models of rockets and airplanes at high pressures. They do not necessarily give a true picture of what happens to a missile, rocket or airplane traveling at supersonic speeds in the rarified atmosphere and low temperature at altitudes 10 miles or more above the earth.

Science News Letter, January 17, 1948

PSYCHOLOGY

Twins Over 60 Studied For Problems of Aging

► WANTED! Twins, over 60 years old, residents of New York, to help scientists discover the social and psychological factors needed to preserve physical and mental health in old age.

Dr. Franz J. Kallmann of the New York State Psychiatric Institute at Columbia-Presbyterian Medical Center may not actually have run such a want ad, but he says he still needs more twins.

The study is the first of its kind ever attempted. With a \$31,500 grant from the Rockefeller Foundation, renewal of an original gift made in 1945, the study will continue for three more years.

The present number of aging twins available for continuous observation totals more than 1,500 persons. Their ages range from 60 to 94 years. They include more than 500 pairs of whom both members are still alive and actively co-operating by providing life histories and the extent of their activities in aging years.

Analysis of these data, Dr. Kallmann says, will give a valuable opportunity to study life histories of twins in relation to the many problems of aging and longevity and the mental health aspects of marital adjustment, mate selection and the effect of working habits.

Science News Letter, January 17, 1948

GEOPHYSICS

Warns Quakes May Damage St. Lawrence Waterway

► A WARNING that earthquakes may endanger part of the proposed St. Lawrence Waterway was issued in Ottawa by an engineering geologist.

Dr. Charles P. Berkey of Columbia University reported to the Geological Society of America that the strong Massena-Cornwall earthquake in September, 1944, "covered precisely those portions of the St. Lawrence River and side-country which would be occupied by the principal works of the St. Lawrence Waterway development as proposed by the U. S. Engineers."

The scientist, who made a study of the area immediately after the quake, predicted that the greatest danger would be to the main canal. This would be built on loose sands and silt where a tremor does the most harm, Dr. Berkey said. Dams, locks and power house, built on a sound rock foundation, would not have been damaged by the quake of three years ago. He recommended "special handling" in the building of the canal and other structures on the loose ground area of the waterway.

Dr. Berkey explained that the area between Massena, N. Y., and Montreal has a number of quake-making faults. The possibility of future disturbances should not be overlooked in planning the St. Lawrence development, he cautioned.

Science News Letter, January 17, 1948

BOTANY

Antibiotics May Aid Fight Against Plant Diseases

► ANTIBIOTICS, like penicillin and streptomycin, not only kill germs attacking human beings and animals; they can be put to good use against plant diseases as well. Profs. Curt Leben and G. W. Keitt of the University of Wisconsin told of using a still unidentified substance extracted from *Streptomyces*, source of streptomycin, in completely controlling the difficult diseases known as apple scab and early blight of tomatoes. When the leaves of the plants being studied were sprinkled to simulate rain, the substance, whatever it was, was not washed off. We may yet see whole orchards sprayed with drugs that we now think of as usable only in hospitals and sickrooms.

Science News Letter, January 17, 1948

GENETICS

Better Farm Animals Bred

Animal improvements will include unwrinkled sheep, cattle that can stand hot weather, leaner hogs and small turkeys with lots of white meat.

See Front Cover

► NEW model animals are being bred for future American farms in much the same way that automobile engineers already have the new cars of 1950 on their drawing boards.

Here are some of the animal improvements promised by animal geneticists of the U. S. Department of Agriculture:

Unwrinkled and smooth-faced sheep.

Cattle that thrive in hot climates.

Steers that make better beefsteaks.

Leaner hogs.

Chickens without great pin feathers.

Small, white-meated, family-size turkeys.

Sheep that don't have to be "shaved" mean savings in dollars. Open-faced Rambouillet ewes at the U. S. Sheep Experiment Station near Dubois, Idaho, weighed five pounds more after shearing than those that were wool-blind.

Sheep without the wool over their eyes can see to find food and water and are better able to keep out of trouble. They also have produced more than 10% more pounds of live lambs a year than woolly-faced ewes.

Finer Fur Coats

Finer fur coats will become available as scientists "press" wrinkled sheep. When the pelts are processed for mouton fur, the wrinkles don't come out but leave streaks. Scientists can breed the wrinkles out by crossing sheep without excess skin folds. This also pays in better wool, for the wool on the wrinkles is coarse. Wrinkled sheep are hard to shear, and often the wool gets bits of skin mixed with it—which is hard on the sheep as well as on the quality of the wool.

More beautiful Navaho Indian rugs will result from other scientific experiments in sheep breeding. Observation on the Southwestern Range and Sheep Breeding Laboratory at Fort Wingate, N. M., and on the Navajo reservation is leading toward development of the type of sheep best suited to Navaho needs. Results of this research work in crossbreeding are being applied on the Navajo

reservation as fast as conditions will permit.

One of the aims is a long-staple wool better suited to weaving and also to commercial uses. Demand for wool for Navaho weaving far exceeds the supply.

Fat hogs used to be the goal of hog raisers. Now they grow them lean. Vegetable fats have given lard such competition that lean pork gives more profit now. Another improvement in breeding is the development of hogs that are ready for market with the least amount of food.

Developing Best Strains

The Department of Agriculture's Research Center at Beltsville, Md., is crossbreeding with American strains until they get a line with the best characteristics. Then they will inbreed to stabilize these characteristics. One of Denmark's best strains is the Danish Landrace, which is being crossed with Duroc,

Hampshire, Yorkshire and Poland China hogs. The Landrace breed is white, and because of its thin skin it gets sunburned. So scientists have developed red and black strains of the Landrace. At Beltsville accurate records are kept on mothering ability, rate of gain and feed utilization.

Hybrid Hogs Are in Use

Hybrid hogs are already in use on American farms. Some of the boars of the new strains have been sold to hog breeders so that they can find out how good their hogs are. By mating some of the sows to the new boars they can compare the offspring to those produced by matings in the herd. These hog raisers are expected to keep records to send the Research Center, thus helping in the plan for breeding better hogs.

The bodies of hogs of the new strain are long, deep and smooth. The hams are wide and thick, and carry down well to the hock. The new strains average nine to ten pigs per litter.

Science is making cooler cows and better beefsteaks. Cattle can stand only small changes in their body tempera-



IRONING OUT THE WRINKLES—When the pelts of these sheep are processed for mouton fur the wrinkles leave streaks so scientists are crossbreeding them with smooth model sheep. This will also result in better wool since that on the wrinkles is coarse.



BETTER WOOL—This champion Merino ram demonstrates the success scientists have had in solving the problem of wrinkled sheep by cross-breeding.

ture of 101 degrees Fahrenheit. This would be hot enough for any man as well as for cattle, but the hot climate near the Gulf of Mexico taxes the animals' self-cooling systems. Zebu, Aberdeen-Angus, Africander, Hereford and shorthorn bulls were used in crossbreeding at the Iberia Livestock Experiment Station at Jeanerette, La. From one-fourth to one-half zebu blood is needed to make the animals better able to stand hot weather, scientists believe, though further research has yet to reveal just the proportion. Zebu cattle, the humpbacks from India, have better heat-regulating bodies than European cattle.

Superior Cooling System

An indication of the superior cooling system of zebras is their grazing habits. On hot days they continue grazing most of the day, while Angus cattle lie in the shade.

Better beefsteaks are designed to make everybody happy—those who can afford them, that is. Selective breeding plays an important part in insuring tender, juicy steaks. There are many characteristics that even experienced cattlemen cannot see in mating cattle. But some good characteristics can be bred into a line of cattle by selecting steers that are heavy when born, grow fast, and provide tender steaks when slaughtered.

Some of the things hard to judge are the ability of the steer to turn feed into flesh, the value of the animal when ready

for slaughter and the merit of the carcass. By studying eight or 10 offspring it is possible to judge the sire's value.

U. S. Department of Agriculture scientists are stressing the breeding of low-set, compact cattle as shown on the cover of this week's SCIENCE NEWS LETTER. However, the size should not be reduced too much by restricting length and height to get compactness.

Hybrid Vigor Studied

Corn hasn't any monopoly on hybrid vigor. Steers of shorthorn bulls mated to Hereford cows gained more rapidly than purebreds, were heavier at time of marketing and had fewer digestive disorders.

Further research, with carefully kept records, is necessary to tell how valuable crossbreeding is in producing better beef cattle.

Meanwhile poultry is not being neglected. Housewives will be able to buy chickens with fewer pin feathers to pull out. Fast-feathering chicks are the answer. Selective breeding has developed a strain of the new Columbian chicken that has well-developed tail and wing feathers. Higher quality meat and eggs, and more eggs are also objectives of poultry scientists at the Department's Beltsville Research Center.

The average hen on your father's farm laid 86 eggs a year. Now the average hen lays 118 eggs, and in some flocks the

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Do You Know?

Moose are powerful *swimmers*; so are mice.

Bed sheets made of paper may become common some day.

A *rat* may have six litters of young each year, with from six to 22 in each litter.

The iris is the source of *irone*, one of the most odoriferous substances for perfumes provided by nature.

The *gas-turbine* is particularly suitable for locomotives because it combines good thermal efficiency with freedom of water requirements.

Fire-fighting benefits by the use of *organic chemicals* which, mixed with the water used, give an increased extinguishing action of 200% to 400%.

A South American native plant known as *naranjilla*, botanically *Solanum quitense*, yields a delicious and refreshing fruit juice; in shape, color and acidity the fruit is similar to the orange.

Highly concentrated *hydrogen peroxide*, used with calcium permanganate to launch Nazi V-1 bombs, may some day be used to operate small power plants where the factors of space and weight per horsepower are important.

Doorbell that automatically gives different signals when the front door or rear door button is pushed lets the housewife know immediately at which door her visitor is.

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number is twice that. Good feeding and sanitation and selective breeding have made this record. A breeder mates birds that have superior egg-laying ability and can pass it on to their offspring.

Getting all-white meat in chickens is not worrying scientists, but producing more meat for every dollar spent on food is a problem of both scientists and of the farmers. It has been found that cross-breeds usually produce more meat for the amount of food than the purebred parents. Crossbred pullets and hens tend

to be broody oftener than purebreds.

The Beltsville Small White turkey, already on the market, is the answer to family needs. It is a relatively small bird, with lots of white meat. Several thousand have been produced and hatching eggs have been distributed to commercial breeders. The toms weigh 12 to 17 pounds alive at market age, and young hens weigh 7½ to 10 pounds, roughly about two-thirds the weight of mature standard-size birds.

Science News Letter, January 17, 1948

MEDICINE

Drugs Endanger Infant

Pain-relieving methidon, given during childbirth, has a depressing effect on the new-born baby's breathing. It is more powerful than morphine.

➤ DANGER to the new-born baby when its mother is given one of the new drugs for relieving pains during its birth is reported by Drs. Allan C. Barnes, Fred B. Hapke and John H. Holzaepfel of the College of Medicine at Ohio State University.

The drug, known variously as methidon, amidone, dolophine, and 10820, was synthesized in Germany in 1939 and kept secret during the war. It is two to four times as powerful as morphine in relieving pain, but like morphine can probably cause addiction.

The danger of methidon for new-born babies comes through its depressing effect on breathing. When a certain size dose of methidon was given to the mother two hours or less before the baby's birth, there was a significant delay before the baby started to breathe and gave its first lusty cry. When a smaller dose, two-thirds the amount, of methidon was given, regardless of how short or long a time before the baby was born it had no significant effect on the baby's breathing.

Methidon, like other pain-relieving drugs, may not be the only drug given to a mother in childbirth. Combinations of drugs are often used to ease labor pains. The possibility that using methidon with other drugs may increase its harmful effect on the baby must be considered, the Ohio State doctors point out, though their studies give no information on this.

Almost equally important with the finding of methidon's danger, they think, is the method they devised for studying it. Each of the 25 women given methi-

don, and each of 30 not given it and studied as controls, was given either caudal or saddle block spinal anesthesia for the last few hours before the baby's birth.

This method makes possible the study of the effects of a single drug, such as methidon, on the baby's breathing because no other pain-relieving drug need be given the mother. No other study of the effects of a single drug on the new-born baby's breathing has been made, so far as reports going back to the year 1904 show.

Details of the current study are reported in the first issue of the *Health Center Journal*, (Dec.) new medical journal issued by Ohio State's College of Medicine and Dentistry.

Science News Letter, January 17, 1948

GENERAL SCIENCE

Books Pay Subscriptions To Polish Science Journal

➤ TO keep up with science in Poland you can receive *Zycie Nauki* (Life of Science), a monthly publication, which appears in Polish with a summary section in English. To the editors of this journal, books from abroad are more to be desired than cash for subscriptions. A recent issue (July-Aug., 1947) carries the message:

"We beg foreign subscribers not to send us cash but only their addresses, as it would be more convenient for us to receive foreign books in exchange. Their titles would be agreed to by later correspondence."

Science News Letter, January 17, 1948

AGRICULTURE

India's Food Output Low

► INDIA'S great need is for more food in the face of a rapid increase in population. This is a predominant theme of the Indian Science Congress held at Patna, with scientists from all parts of India in attendance, regardless of political affiliations.

Indian food production could be increased by 30% if scientific methods of agriculture, artificial fertilizers, more irrigation and extermination of insect pests were applied, Prof. B. C. Guha, of Calcutta University, chief government adviser, told the Congress. He declared that India does not get a fair share of the world's food supply.

Manufacture of foodstuffs from the cellulose of wood and farm wastes was urged by several other scientists as a means of attempting to keep the food supply more adequate. Such methods were practiced successfully in Switzerland and Scandinavia during the war and as a result animals were fed on such synthetic foods, providing meat from raw materials that could not be used for human consumption.

Artificial insemination used in breeding Indian cattle promises important improvement in the quality of the herds

for both meat and milk, the veterinary section of the congress was told. In this method one bull of superior breeding can be the father of thousands of calves whose mothers he never sees.

But much opposition to this scientific procedure so successful in other world areas is reported among Indian farmers, because Mahatma Ghandi has made a pronouncement against artificial insemination for cows.

Plan Rainmaking in India

► ARTIFICIAL rain making at high altitudes will be tried in India during prolonged breaks in the monsoon, Dr. S. K. Banerjee, director general of the Indian Observatories, told the congress.

Spraying of clouds with dry ice will have to be done at a height of about 15,000 feet because the freezing level is higher in India than in the United States, where the rain making is done at lower altitudes.

Prof. Manuel Vallarta, Mexican delegate to the congress, advocated using V-2 rockets to investigate the proton origin of cosmic rays.

Science News Letter, January 17, 1948

CHEMISTRY

Insecticide List Growing

► NOW that the football season is over, and you've memorized the traditionally unpronounceable names of the All-American gridders, it's time to tackle another list of bizarre names. These are the chemical weapons you will hear about in the 1948 war on flies, rats and other pests of the animal kingdom.

DDT and its near-relative insecticide DDD are easy names because they are abbreviations for long chemical terms. But maybe "GIX" sounds like a breakfast food to you. Actually it is another chemical relative of DDT. GIX was claimed to be superior to DDT for farm use by the Germans, according to a report issued by the Office of Technical Services of the Department of Commerce.

U. S. Department of Agriculture scientists do not agree with the Germans. GIX uses fluorobenzene in place of monochlorobenzene of DDT and is

more expensive. And GIX is not as deadly to insects.

Other newly-added names to the growing list of chemical insect foes include "Parathion" and "Methoxychlor." Both of these are still under experiment. Parathion, which is also called thiophos 3422 or just plain 3422, may be important in orchards where mites survive DDT. Methoxychlor is the proposed name for another DDT-related chemical which boasts some promise against insects.

If you want to shop around in the laboratory for other insect-discouraging chemicals, here are a few of the newer ones which scientists are working with: chlordane, toxaphene, benzene hexachloride, piperonyl cyclohexenone, piperonyl butoxide and tetraethyl pyrophosphate.

Antu sounds like a place we chased the Japs out of in World War II. Actually it is a chemical to kill rats. Another death-on-rats is known as 1080.

Science News Letter, January 17, 1948



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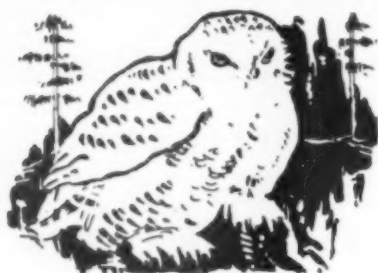
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Don't Shoot!

➤ **SHOOTING** at owls and hawks is a good deal like shooting at night watchmen and policemen—except that the owls and hawks can't shoot back. All they can do is die if hit, or leave the neighborhood if they escape our lead, thereby giving free entry to our valuables to thieves whose activities are normally held in check by their presence.

True, one or two species of hawks steal chickens occasionally. True also, owls are hated by other birds, which "gang up" on them whenever they find one by daylight in an exposed place. But to condemn the great majority of harmless and useful hawks for raids which they never commit, and to make common cause with bluejays and wrens against stray owls for their rather rare nest robberies, is simply an ignorant neglect of our own biological interests.

Predators, killers, owls and hawks undoubtedly are. But the prey that they kill consists overwhelmingly of small rodents and other creatures that we human beings commonly label as vermin. Owls without exception, and hawks with only two or three exceptions, are our allies, not our enemies.

They deserve our gratitude, not our gunfire.

Owls especially are valuable as flying mousetraps. They are active when the rodents are most likely to be abroad. Although, contrary to a widespread notion, they cannot see in the dark, they do see well enough to do highly effective hunting in the dim twilight of late evening and pre-dawn, and by the illumination shed by even a sliver of a moon. They are noiseless fliers, so that the rodent quarry has no warning of his impending doom until the sharp talons close on him.

Beginning now, and lasting until spring, is the time when the pressure

of owl and hawk hunting on the rodent populations is most effective, from the human point of view. Food supplies are shortest in the woods and fields, so that hunger drives many wild species to raids on our grain and other stores, to gnawing the bark of young orchard trees, and to many other destructive practices. At the same time, their numbers are at the lowest ebb of the year, for breeding is at a standstill with most species. Every potential mouse parent taken out now means one family fewer among our undesired dependents next year. Owls should therefore be left unmolested in their volunteer role of rodent control agents.

Science News Letter, January 17, 1948

ASTRONOMY

1947 Broke Comet Record

Fourteen were found during the year, nine of which were newly-discovered. Up until this time 1932, when 13 were spotted, was the big year for comet-seekers.

➤ "THE year 1947 was a record-breaking one for comet-seekers," according to Dr. Fred L. Whipple of Harvard College Observatory. Only one comet, seen by many in the southern hemisphere and reported to have broken in two as it became less bright, has been spectacular. But a large number have been visible with a telescope.

A total of 14 comets were found during 1947. This breaks all previous records for comet-finding. Up to this time the all-time record for one year was 13, the number spotted in 1932. Not only were more comets located this year, but the number of newly-discovered ones was greater. Nine of the 14 comets were new finds, five were comets that periodically return to the vicinity of the earth. In 1932 only eight comets were newly discovered.

One-third of the new comets, those visitors from space that remain visible for a few weeks or months then fade away, were spotted by M. J. Bester of Harvard's South African station. Two are known as Bester's comets, while the other bears the name of Rondonina-Bester. It was independently discovered by two people.

Two of the periodic comets visible this year, Faye and Grigg-Skjellerup, were also seen in 1932. Comet Schwassman-Wachmann, also seen both years, is never counted in totalling the number of comets spotted for it is eternally visible. Comet Oterma, another faint comet that never entirely disappears, was not discovered until several years ago.

Another record breaking year for discovering comets was 1927. In that year ten comets, the largest number up to that time, were reported: six were new and the rest periodic visitors on regular return trips. The record for 1947 beats that set 20 years ago both as to new comets and as to total number seen.

Beside the three comets named Bester, other comets discovered this year are: Becvar, Jakovin, Wirtanen, Reinmuth, Honda and 1947 N. This last, the bright new comet with the long tail has not been named for anyone as it is still not known who first found it from the ship in the Pacific.

Science News Letter, January 17, 1948

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- ENGLISH NATURALISTS FROM NECKAM TO RAY; A Study of the Making of the Modern World—Charles E. Raven—*Cambridge Univ.*, 379 p., \$6.50. A history of man's attitude toward the flora and fauna of his environment, illustrated by the lives of the men who contributed to the progressive change in Western civilization from the medieval to the modern world.
- A HANDBOOK OF DESIGNS AND HOW TO USE THEM—Gordon de Lemos—*Educational Materials*, 118 p., illus., paper, \$2.50. For artists, craftsmen and students—designs covering subjects ranging from birds and flowers to abstract motifs.
- HORMONES AND BEHAVIOR; a Survey of Interrelationships Between Endocrine Secretions and Patterns of Overt Response—Frank A. Beach—*Hoebner*, 368 p., \$6.50. A detailed study of the whole subject of hormonal activity in men and other animals. Includes an exhaustive bibliography.
- HYPNOTHERAPY: a Survey of the Literature—Margaret Brenman and Merton M. Gill—*Int. Univ. Press*, Menninger Foundation Monograph Series No. 5, 276 p., \$4.50. An edition for the public of a monograph published in 1944 by Josiah Macy, Jr., Foundation, plus four case studies and a report on the use of hypnosis in experimental psychology investigation.
- INTRODUCTION TO PHILOSOPHY OF EDUCATION—Stella Van Petten Henderson—*Univ. of Chicago Press*, 401 p., \$4.00. Textbook for the undergraduate preparing to teach, summarizing philosophy as a sound basis for educational practice.
- MAN'S LAST CHOICE: a Survey of Political Creeds and Scientific Realities—E. M. Friedwald—*Viking*, 128 p., \$2.00. Unprecedented growth of science, the most potent single factor in the history of mankind, constitutes, the author believes, a challenge to political thought.
- NUCLEAR PHYSICS IN PHOTOGRAPHS; Tracks of Charged Particles in Photographic Emulsions—C. F. Powell and G. P. S. Occhialini—*Oxford*, 124 p., illus., \$6.00. A photographic atlas with explanatory text including natural radioactivity, nuclear transmutations, as well as mesons.
- THE PATENT SYSTEM—Law and Contemporary Problems, Vol. XII, No. 4—*Duke Univ.*, 162 p., paper, \$1.00. Symposium of eight papers covering various phases of this important subject.
- PRACTICAL CHILD GUIDANCE AND MENTAL HYGIENE—Samuel Kahn, Grace Kirsten, May E. March—*Meador*, 285 p., \$4.00. This book attempts to answer some common questions on child care.
- THE PRACTICE OF GROUP THERAPY—S. R. Slavson, ed.—*Int. Univ.*, 271 p., \$5.00. A comprehensive survey of the scope and

limitations of this new method of clinical treatment of various maladjustments such as allergies, neuroses, and speech disorders, are well as psychoses.

PRELIMINARY SURVEY OF THE AMPHIBIANS OF THE RIUKIU ISLANDS—Robert F. Inger—*Chicago Nat. History Museum, Fieldiana: Zoology*, Vol. 32, No. 5, 55 p., paper, 75 cents.

PROBLEMS OF ACCELERATING AIRCRAFT PRODUCTION DURING WORLD WAR II—Tom Lilley, Pearson Hunt, J. K. Butters, Frank F. Gilmore, Paul F. Lawler—*Harvard Univ., Grad. School of Bus. Adm.*, 112 p., paper, \$1.50. A plan for industrial preparedness in the aircraft industry, undertaken at request of War, Navy and Commerce Departments.

PROCEEDINGS OF THE INDIANA ACADEMY OF SCIENCE, 1946, Vol. 56—P. D. Edwards, ed.—*The Academy*, 284 p., illus., \$3.00. Papers on subjects ranging from anthropology to zoology.

SCIENTISTS STARRED 1903-1943 IN "AMERICAN MEN OF SCIENCE"; a Study of Collegiate and Doctoral Training, Birthplace, Distribution, Backgrounds, and Developmental Influences—Stephen Sargent Visser—*Johns Hopkins Press*, 556 p., \$4.50.

A SELECTED BIBLIOGRAPHY ON HIGHWAY SAFETY—*Highway Research Board*, Bibliography No. 2, 46 p., paper, 45 cents. While highway safety is the main point of emphasis here, design, construction and traffic facilitation are also included.

SEXUAL BEHAVIOR IN THE HUMAN MALE—Alfred C. Kinsey, Wardell B. Pomeroy, Clyde E. Martin—*Saunders* 804 p., \$6.50. Based on interviews with more than 12,000 individuals in a study supported by National Research Council's Committee for Research on Problems of Sex, (See SNL, Nov. 29, p. 342.)

TALES FROM SPECKS OF DUST: Poems on the Atomic Age—Max Kaufman—*William-Frederick*, 52 p., \$2.00. Various topics portraying an intimate knowledge of the universe presented in verse.

UNDERSTANDING VECTORS AND PHASE—John F. Rider and Seymour D. Uslan—*John F. Rider Pub. Inc.*, 153 p., illus., paper, 99 cents. Handy pocket-size book for those lacking technical training, clarifying many aspects in radio and electronics.

Science News Letter, January 17, 1948

GENERAL SCIENCE

Radio Storm Predictions Were 75% Correct in 1947

► ADVANCE warnings of bad radio reception or radio blackouts, issued by Science Service throughout the past year in exclusive forecasts, were correct three out of four times. Likewise good reception of shortwave radio broadcasts materialized as predicted 75% of the time.

These predictions, foretelling radio reception several days and often even a week in the future, compare favorably with the Bureau's daily warnings. On these, issued several hours in advance, their predictions were correct 92% of the time.

These up-to-the-minute forecasts can be secured twice an hour by tuning in on the Bureau's own station, WWV, at 2.5, 5, 10, 15 and 20 megacycles, audible almost anywhere in the world. If short-wave broadcasts are to come through clearly, "W"s (dot, dash, dash in Morse code) follow the time announcement.

Science News Letter, January 17, 1948

EMBRYOLOGY

Grow Chick Embryos Under Glass Dishes for Study

► CHICK embryos can be grown for study purposes with glass dishes substituted for their opaque eggshells, by a method which Dr. Nelson T. Spratt, Jr., of the Johns Hopkins University, has developed.

They do not develop to full hatching size, of course, but they can be carried along for several days, while students watch the beginnings of organ development. Effects of drugs and other chemicals can also be studied.

The embryos, at an early stage of incubation, are removed from the carefully shelled eggs and transferred to the covered glass dishes. They absorb a food mixture consisting of raw white of egg, agar (a seaweed gelatin), and a carefully adjusted solution of three mineral salts known as Ringer's solution.

Details of the technique are presented in *Science*, (Nov. 7, 1947).

Science News Letter, January 17, 1948

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• New Machines and Gadgets •

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✿ **SHOULDER REST** fits all hand-set type telephones and gives freedom to both hands for making notes or other work while using the phone. It is made of cast aluminum, and has rubber grips to keep it in place over the shoulder while holding the phone to the ear.

Science News Letter, January 17, 1948

✿ **CASTER WHEELS** and wheels for floor trucks are modeled of resin and maserated duck canvas and consequently, will not mar fine floors. The material is strong and durable, easy-rolling, resilient, and resistant to oil, mild acids and temperatures from zero to 200 degrees Fahrenheit.

Science News Letter, January 17, 1948

✿ **ELECTRIC EYE**, used in combination with a special light beam, is sensitive to a distance up to 1,000 feet and is not adversely affected by outside light, rain or snow. The beam of light used is interrupted 900 times a second; the photo-electric relay is responsive only to this frequency.

Science News Letter, January 17, 1948

✿ **AUTOMATIC SWITCH**, to cut the ignition of an automobile if it over- turns, consists of a small plastic bowl containing mercury in its bottom through which the electric current normally passes. When inverted, the mercury clears the electric terminals, thus breaking the current.

Science News Letter, January 17, 1948

✿ **FLOOR WAXER**, shown in the picture, has a four-foot handle about which is a transparent plastic cylinder that holds



a pint of liquid wax. A trigger on the upper end of the handle releases wax as needed to the polishing pad.

Science News Letter, January 17, 1948

✿ **BIRD FEEDER**, recently patented, is a covered glass box partly open on the front, with upright wood ends cut to fit securely on a window sill. Inside is at least one perch and one feeding trough.

Science News Letter, January 17, 1948

✿ **MULTIPLE-SHOT** blasting unit for coal mining, developed by the U. S. Bureau of Mines, is capable of firing 10 detonators connected in series with practically no danger of gas ignition. The four-volt cap-battery used by miners for illuminating purposes is a reliable source of energy for the unit.

Science News Letter, January 17, 1948

✿ **TWIN-CYLINDER ENGINES**, to power standard balloon-tire bicycles, are horizontally-opposed-design motors, each containing only five moving parts. Valves, tappets, connecting-rod bearings, and other sources of wear are eliminated.

Science News Letter, January 17, 1948

✿ **BOTTLE RESEALER** gives air-tight protection for carbonated beverages. The sealing device fits over the top of the partly emptied bottle; a quick turn of a hand screw on its top forces a rubber washer tight against its lip.

Science News Letter, January 17, 1948

You are invited to accept one of the few memberships still vacant in

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Question Box

AGRICULTURE

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MEDICINE

How are babies endangered by pain-relieving drugs? p. 44.

What is the potential medical weapon against the atom bomb? p. 35.

Why is chronic illness a challenge to doctors? p. 36.

OPHTHALMOLOGY

What has a study on the effect of altitude on eyesight revealed? p. 37.

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PLANT PATHOLOGY

How can plants be tested for virus diseases? p. 39.

Photographs: Cover, U. S. Dept. of Agric.; p. 35, U. of Calif.; p. 37, Union Electric Co.; p. 39, Cornell U.

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